

The Status of *Jacquemontia sandwicensis*

(Convolvulaceae)

Hawaiian Plant Studies 57

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Jacquemontia sandwicensis Gray is a charming plant, common just above the Hawaiian beaches or rocky shores. It has trailing stems bearing downy leaves and cute little bell-like, pale blue flowers.

It has regularly been accepted as a distinct and endemic Hawaiian species. Now there is a new classification by Robertson (1974: 510-512, figs. 4, 11), which is an expanded portion of his doctoral thesis. He reclassifies the Hawaiian plant as *J. ovalifolia* (Choisy) Hallier f., subsp. *sandwicensis* (Gray) Robertson, and agrees that it is endemic to Hawaii, "where it is both ubiquitous and common" (1974: 505). It is definitely common along the coasts, and it occurs inland and upland, even to 1,500 or 1,800 feet altitude in dry leeward areas. However, it is not ubiquitous, not being found in the upland wet areas, forests, or in the subalpine regions, and it does not occur on any of the high mountains, such as Mauna Kea, at 13,784 feet altitude.

His subsp. *ovalifolia* occurs only in coastal and interior tropical Africa and Madagascar. It has but sparse pubescence, mostly on young shoots; blades chartaceous, elliptic, obtuse, (or retuse); petioles 3-30 mm long; inflorescences shorter than the leaves; corollas 8-9 mm long; capsules 4-5 mm in diameter. This subspecies is the most similar one to the Hawaiian one.

His subsp. *obcordata* (Millsp.) Robertson, of coastal and interior Mexico and the West Indies, on the saline shores or marshes, is more distantly related. It has the blades usually 7-20 mm long

(rarely to 40.3 mm); petioles 5-12 mm long; blades elliptic to subcircular, retuse to obcordate; inflorescences mostly shorter than the leaves; corollas 7-10 mm long, capsules 4-5 mm in diameter.

The Hawaiian subsp. sandwicensis (Gray) Robertson is a common marine littoral plant, but also occurs inland and upland to 1,500 feet altitude. It is found on both the windward and the leeward sides of the islands. Its young shoots are hairy, usually densely pilose, but in the commonest variety the blades are early glabrate; blades to 6 cm long, chartaceous to fleshy, broadly elliptic to suborbicular, retuse or obcordate; petioles 5-23 mm long; inflorescences from exceeding to twice as long as the leaves; corollas 12-14 mm long; capsules 5-6 mm in diameter.

The Hawaiian plant has several clear differences that are judged to be of specific value. There is no evident, convincing reason to classify it as a variant of an African species; and the subsp. obcordata of the West Indies and eastern Mexico is morphologically even more unlike the Hawaiian one. In conclusion, the Hawaiian plant is here reestablished as a local, endemic species, J. sandwicensis Gray.

The Jacquemontia is one of the conspicuous maritime littoral plants on all the main Hawaiian Islands (including Niihau and Molokini, which were not listed by Robertson). Unlike most of the other Hawaiian littoral plants, it is not a strict halophyte. On Niihau, it is common on the shores, and is found throughout, right to the top of the mountain at 1,281 feet altitude. On Oahu, it was formerly found in Manoa, Kaimuki, and Kalihi. On Lanai it grows inland to 1,500 feet altitude. On Hawaii near Kawaihae to 1,500 feet altitude. The var. tomentosa with permanently canescent nerbage, occurs near sea level on Oahu, Molokai, and Lanai, and at Kawaihae, Hawaii, at from 800 to 1,800 feet altitude.

Variability in the hairy vesture of J. sandwicensis has been noted and classified by Choisy in 1834, and 1845, by Hillebrand in 1888, and by Degener and Degener in 1956. Choisy named two pubescent varieties; and the Degeners a forma

with white canescent herbage, in addition to the species and variety in the sense of Hillebrand.

Robertson (1974: 511) discusses the variability of the pubescence, and concludes, "I do not recognize any infraspecific taxa." That is one solution of the problem.

The present investigator finds three recognizable groups, based on pubescence, and arrives at a different solution.

Early collectors in Hawaii, Nelson, Chamisso, and Macrae, collected this common littoral plant, but the first one to publish a discussion of it was Charles Gaudichaud. His ship the Uranie visited Hawaii in 1819, and Gaudichaud collected briefly, but vigorously, on Hawaii, Maui, and Oahu. In his description of the vegetational zones on the islands (1827: 92-93), he commented as follows: "De ce nombre est le convulvulus ovalifolius [= Jacquemontia sandwicensis] remarquable par ses variétés, qui, selon les lieux, et souvent dans le même, alternativement glabres, pubescentes, velues ou fortement tomenteuses, même drapées; en raison de ses états divers, cette plante porte les noms de maripa, mouroukoa, kouaourou et tatou-ai-âla." This last vernacular name was misspelled in print, for on the original label in Gaudichaud's hand in the Geneva herbarium, it is clearly tatou-ai-âta.

How extended Gaudichaud's field observations on Jacquemontia were, is not now known. From his discussion, it is seen that he recognized plants that were glabrous, and others with five different types of pubescence. His collections are conserved in the Paris and the Geneva herbaria. Each has but two kinds of Jacquemontia, first the var. sandwicensis (Ipomoea ovalifolia, var. pubescens), and second the var. tomentosa (I. ovalifolia, var. tomentosa), If he once had those four other pubescent variations, he left no documentation of them.

Key to Varieties

- A. Young shoots pilose, the hairs stellate, appressed or spreading,
- B. Foliage glabrate. J. sandwicensis, var. sandwicensis.

- B. Foliage persistently hairy. var. tomentosa.
 A. Young shoots glabrous; leaves glabrous.
 var. laevis.

Jacquemontia sandwicensis Gray, var. sandwicensis,
 Am. Acad. Arts. Sci., Proc. 5: 336, (1860-62)
 = 1862.

J. ovalifolia (Choisy) Hallier f., subsp.
sandwicensis (Gray) Robertson, Mo. Bot. Gard.,
 Ann. 61: 510, figs. 2, 11, 1974.

Ipomoea ovalifolia Choisy, DC., Prodr. 9:
 357, 1845, as to Hawaiian plants only.

I. ovalifolia β var. pubescens Choisy, DC.,
 Prodr. 9: 357, 1845.

Description: Herbage at first densely pilose,
 the hairs appressed or spreading; blades becoming
 glabrate, elliptic to orbicular, retuse, charta-
 ceous to thick and somewhat fleshy, 1.5-6 cm
 long; inflorescences from exceeding to twice as
 long as the leaves; corolla 12-14 mm long; capsules
 5-6 mm in diameter.

Holotype: Sandwich Islands, United States
 South Pacific Exploring Expedition under Captain
 Charles Wilkes (US).

Hawaiian Islands, Kauai, Niihau, Lehua, Oahu,
 Molokai, Maui, Molokini, Lanai, and Hawaii. It
 is an abundant littoral species, but on certain
 dry, leeward slopes it ascends to 1,500 feet
 altitude.

Var. tomentosa Hbd., Fl. Haw. Is. 318, 1888;
 Degener & Degener, Fl. Haw. fam. 307,
 10/26/56.

var. tomentosa (Choisy) Hbd., forma Hosakae
 Deg. & Deg., (as Hosakai), Fl. Haw. fam.
 307, 10/26/56.

Jacquemontia ovalifolia (Choisy) Hallier f.,
 subsp. sandwicensis sensu Robertson, in
 part, Mo. Bot. Gard., Ann. 61: 504, fig.
 4, 1974.

Original Diagnosis: "The whole plant, includ-
 ing the inflorescence, clothed with a thick and
 soft fulvous tomentum. Leaves thick fleshy. Pedunc-
 les longer than the leaves. Calyx and corolla
 larger than in a. Southern shore of Molokai."

Holotype: Hawaiian Islands, southern shore of Molokai. Doubtless this was a Hillebrand collection, placed in Berlin, now destroyed.

Neotype: Hawaiian Islands, Molokai Island, Moomomi beach, March? 1911? J. F. Rock (BISH). Neotype here designated.

Distribution: Oahu, Molokai, Maui, Lanai, Molokini, Kahoolawe, and Hawaii.

Degener cites this variety as published by (Choisy) Hilleb., and as basionym gives Ipomoea ovalifolia, var. γ tomentosa Choisy. This parenthetical authority sounds logical, but Hillebrand in publishing his var. tomentosa gave no basionym. Instead, under the species J. sandwicensis Gray, he cited as synonyms I. ovalifolia, vars. β & γ Choisy. The var. γ tomentosa Choisy was based solely on the type, ins. Sandwich, Gaudichaud, so it is a synonym of the species, but not the basionym of J. sandwicensis, var. tomentosa Hbd.

J. sandwicensis, var. tomentosa, forma Hosakae (as Hosakai) Degener & Degener, Fl. Haw., fam. 307, 10/26/56, was based on Hawaii, Kawaihae, Hosaka 2,024 (BISH). Its diagnosis was "A var. indumento canescente differt." This was described as being canescent, in contrast with var. tomentosa, forma tomentosa, with castaneous hairs. In the herbarium there is no detectable difference between plants with brownish rather than grayish hairs, but the character is fugitive. Until further justification is found, the forma Hosakae may well stay as a forma dubia.

Var. laevis var. nov.

Diagnosis Holotypi: Novellis glabris, planta glabra est.

Diagnosis of Holotype: Young shoots and whole plant glabrous.

Holotypus: Hawaiian Islands, west Maui Island, Olowalu, along rocky beaches in company with Desmanthus & Waltheria, at sea level, flowers pale blue, 6 April 1972, Kenneth Nagata 989 (BISH).

Literature Cited

Robertson, Kenneth F.

1974. *Jacquemontia ovalifolia* (Convolvulaceae) in Africa, North America, and the Hawaiian Islands. Mo. Bot. Gard., Ann. 61: 502-513, figs. 1-11.